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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/462,863	05/08/2000	ULRICH BENZLER	10191/1227	5597

26646 7590 12/03/2003

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ART UNIT	PAPER NUMBER
2613	15

DATE MAILED: 12/03/2003

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 15

Application Number: 09/462,863
Filing Date: 5/08/2000
Appellant(s): Benzler et al.

Richard L. Mayer
For Appellant

EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed on 8/25/03 as Paper 14.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement is present identifying that there are no related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellant's statement in the brief that claims 6-10 being argued as one group, and claim 11 as another group is agreed with by the Examiner.

(8) Claims Appealed

The copy of the appealed claims contained in the appendix to the brief is correct.

(9) Prior art of record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

XP 000215234 (SIEMENS AG)	ZIEGLER	1990
4,890,160	THOMAS	12/26/89
5,991,447	Eifrig et al.	11/23/99

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 6-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over ZIEGLER (Corporate Rearch & Development) in view of Thomas (4,890,160).

Regarding claims 6-7, ZIEGLER discloses a method for generating an image when estimating a motion of image sequences, the method comprising the steps of:

determining a first motion vector with a pixel accuracy (Fig. 5, element 1);

determining a second motion vector with a sub-pixel accuracy (element 2), wherein a resolution being selected to be higher (refined accuracy) than a resolution of a pixel raster in the first search;

determining a third motion vector by a further interpolation (element 3), wherein the resolution is increased once more, and the interpolation is carried out on the basis of a pixel raster.

ZIEGLER does not specifically disclose utilizing alising reducing interpolation filtering, and more than four neighboring pixels being utilized for an interpolation of each pixel.

However, Thomas teaches motion vector detecting method comprising alising reducing interpolation filtering, and more than four neighboring pixels being utilized for an interpolation of each pixel in order to reduce the effects of noise (col. 9, lines 25-55).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a method for generating an image when estimating a motion of image sequences as taught by ZIEGLER to incorporate the well known concept of alising reducing interpolation filtering, and more than four neighboring pixels being utilized for an interpolation of each pixel as taught by Thomas in order to reduce the effects of noise.

Regarding claim 8, bilinear interpolation, a well known spatial interpolation technique, is used to generate such prediction data of ½ pixel precision, thus considered an obvious feature.

Regarding claims 9 and 10, FIR filter is well known in the art, including mathematics for estimating a value of a particular pixel at a certain frame. Therefore, it is considered quite obvious (simple design choice) to use filter coefficients such as 0, ½, -43/256, 23/256, or -8/256 in order to have a better results, such as reducing the alising effect.

Regarding claim 12, a conventionally well known encoder comprises encoding of a motion vector for transmission, and a range of values of motion vector difference to be coded to an increased/decreased resolution depending on the application and practical usage.

B. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over ZIEGLER and Thomas as applied to claim 6 above, and further in view of Eifrig et al (5,991,447).

Regarding claim 11, the combination of ZIEGLER and Thomas does not particularly disclose predicting video objects separately, and inserting coefficients into a transmission bit stream at a beginning.

However, Eifrig et al teaches predicting video objects separately (Abs.), and inserting coefficients into a transmission bit stream (140) at a beginning in order to achieve efficient coding, object scalability, spatial and temporal scalability, and less error.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a method for generating an image when estimating a motion of image sequences as taught by ZIEGLER to incorporate the well known concept of predicting video objects

separately, and inserting coefficients into a transmission bit stream at a beginning as taught by Eifrig et al in order to achieve efficient coding, object scalability, spatial and temporal scalability, and less error.

(11) Response to Argument

Appellant's arguments filed on 8/25/03 in the brief of Paper 14 have been fully considered but they are not persuasive. The Appellants present arguments contending the Examiner's rejections of claims 6-10 and 12 under 35 U.S.C. 103(a) as being unpatentable over ZIEGLER in view of Thomas and claim 11 as being unpatentable over ZIEGLER and Thomas as applied to claim 6 above, and further in view of Eifrig et al as stated in the Grounds of Rejection.

However, after careful consideration of the arguments presented, the Examiner must respectively disagree for the reasons that follow and submit to the board that the rejection be sustained.

A) The Appellants present a first argument that the Ziegler reference does not disclose at least "determining a second motion vector with a sub-pel accuracy by an alising-reducing interpolation filtering," with "**more than four neighboring pixels** being utilized for an interpolation of each pixel,", and Thomas reference clearly does not teach using **more than four neighboring pixels** (Brief: page 8) as recited in claim 6.

The Examiner respectively diagrees. Upon a further review, Thomas reference indeed teaches motion vector detecting method comprising alising reducing interpolation filtering, and **more than four neighboring pixels** (cubic spline fit) being utilized for an interpolation of each pixel in order to reduce visual effects of alising (col. 9, lines 25-55). The Examiner considers the cubic spline fit as having eight neighboring pixels, which clearly meets the limitation of **more than four neighboring pixels**.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a method for generating an image when estimating a motion of image sequences as

taught by ZIEGLER to incorporate the well known concept of alising reducing interpolation filtering and **more than four neighboring pixels** being utilized for an interpolation of each pixel as taught by Thomas for a motivation of reducing the visual effects of alising.

B) The Appellants present another argument of which the ZIEGLER reference teaches away from the subject matter based on ZIEGLER'S description of disadvantages of non-linear interpolation (Brief: page 9). However, the Examiner respectively disagrees.

Even though ZIEGLER states that it is better to use a method other than the non-linear interpolation, the Examiner considers the ZIEGLER'S statement to be nothing more than a design choice. The ZIEGLER'S statement does not teach away from the subject matter just because ZIEGLER prefer the other method. The ZIEGLER'S statement is merely an opinion. Furthermore, ZIEGLER is comparing and contrasting different methods such as non-linear interpolation method VS bi-linear interpolation method. ZIEGLER'S subject matter seemed to favor bi-linear interpolation method, but, for other practical applications, the inventors does not have to rely on ZIEGLER'S preferred bi-linear interpolation method. In other words, different methods/applications might be more suitable for non-linear interpolation method over bi-linear interpolation method such as in design choices.

For the above reasons, the combination of ZIEGLER reference in view of Thomas does render claims 6-10 and 12 obvious under 35 U.S.C. 103(a).

C) As per claim 11, the motivation to include the Eifrig reference is to achieve efficient coding, object scalability, spatial and temporal scalability, and less error, which are conventionally known in the art.

Moreover, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

For the reasons discussed above, it is believed that the rejection should be sustained.

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November 20, 2003

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